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OCCUPATIONAL PAY RELATIVES FOR METROPOLITAN AREAS IN FLORIDA, 2005

The pay relative in 2005 averaged across all occupations in the Miami-Fort Lauderdale, Fla. Metropolitan Statistical Area was 95, meaning that pay on average was 5 percent below the national average. In the Tallahassee area, the pay relative for all occupations was 87, meaning workers earned 13 percent less than the national average, according to the U.S. Department of Labor's Bureau of Labor Statistics (BLS). Regional Commissioner Janet S. Rankin noted that the pay relatives averaged across all occupations for the six metropolitan areas surveyed in Florida were statistically significantly lower than the national average. (See Table A).

BLS produces occupational pay relatives to facilitate comparisons of occupational pay between metropolitan areas and the United States as a whole. Using data from the National Compensation Survey (NCS), pay relatives have been prepared for 2005 for each of the 9 major occupational groups within 78 Metropolitan Statistical Areas (MSA), as well as averaged across all occupations for each area.

Table A. Pay relatives for major occupational groups in metropolitan areas in Florida, area-to-nation comparisons, National Compensation Survey, July 2005

Metropolitan Area 1/	All occupations	Management, business, and financial	Professional and related	Service	Sales and related
United States	100	100	100	100	100
Melbourne-Titusville-Palm Bay, FL	91*	95*	83*	93*	94*
Miami-Fort Lauderdale, FL	95*	97	94*	92*	94*
Ocala, FL	90*	91*	86*	91*	93*
Orlando, FL	93*	93	91*	88*	100
Tallahassee, FL	87*	76*	88*	89*	92*
Tampa-St. Petersburg-Clearwater, FL	93*	93*	90*	91*	89*

Metropolitan Area 1/	Office and administrative support	Construction and extraction	Installation, maintenance, and repair	Production	Transportation and material moving
United States	100	100	100	100	100
Melbourne-Titusville-Palm Bay, FL	87*	93*	100	94*	101
Miami-Fort Lauderdale, FL	97	84*	101	97	96
Ocala, FL	92*	79*	88*	88*	100
Orlando, FL	93*	87*	97	91	100
Tallahassee, FL	88*	90*	85*	90*	105*
Tampa-St. Petersburg-Clearwater, FL	98	96	94*	92*	98

* The pay relative for this area is significantly different from the national average of all areas at the ten percent level of significance. For additional details, see the Technical Note.
1/ A metropolitan area can be a Metropolitan Statistical Area (MSA) or Consolidated Metropolitan Statistical Area (CMSA) as defined by the Office of Management and Budget, 1994.

Area-to-Nation Comparisons

Workers in the Melbourne-Titusville-Palm Bay area earned statistically significantly lower levels than the national average in seven of the nine occupational groups for which pay relatives were prepared. In the two remaining groups (installation, maintenance, and repair; and transportation and material moving) workers registered pay relatives that were not significantly different from the national average.

In the Miami area, workers in four occupational groups (professional and related; service; sales and related; and construction and extraction) had pay relatives that were statistically significantly lower than the national average. The remaining five occupational groups posted pay levels that were similar to the nation as a whole.

Workers in the Ocala area were paid statistically significantly lower than the U.S. levels for eight of the nine occupational groups. Transportation and material moving was the only occupational group to post a pay relative that was not significantly different from the national average.

Workers in the Orlando area earned statistically significantly lower pay levels than the national average in four of the nine occupational groups (professional and related; service; office and administrative support; and construction and extraction). In the five remaining groups, workers registered pay relatives that were not significantly different from the nation.

In the Tallahassee area, pay relatives were statistically significantly different from the national average in all nine occupational groupings. Transportation and material moving, with a pay relative of 105, was the only occupational group in Florida's six MSAs to register a statistically significantly higher pay relative than the national average. In contrast, management, business, and financial workers earned on average 24 percent less than the nation with a pay relative of 76, which was the smallest pay relative in any occupational group in Florida's six MSAs.

In the Tampa-St. Petersburg-Clearwater area, statistically significantly lower pay relatives than the U.S. average were recorded in six occupational groups, but the remaining 3 groups were similar to the nation (office and administrative support; construction and extraction; and transportation and material moving).

Area-to-Area Comparisons

For the first time, similar area-to-area comparisons have been calculated for all 78 areas included in the occupational pay relatives program and are now available on the BLS website at http://www.bls.gov/ncs/ocs/payrel.htm.

Area-to-area pay comparisons are useful in determining the differences in pay levels between two metropolitan areas. This type of comparison requires that the base area be changed from the nation to a specific metropolitan area. For example, when the Miami-Fort Lauderdale was the base area (pay relative = 100), average pay for all occupational groups in Ocala was 5 percent lower than in Miami, and it was 8 percent lower in Tallahassee. (See table 1). When Orlando is shown as the base area (pay relative = 100) in Table 1, Ocala's and Tallahassee's average earnings were lower than Orlando's by 4 and 6 percent respectively.

What is a pay relative?

A pay relative is a calculation of pay—wages, salaries, commissions, and production bonuses—for a given metropolitan area relative to the nation as a whole. The calculation controls for differences among areas in occupational composition, establishment and occupational characteristics, and the fact that data are collected for areas at different times during the year.

Metropolitan areas differ greatly in the types of occupations that are available to the local workforce. For example, in Brownsville, Texas, the ratio of workers in the high-paying management, business, and financial occupational group to the number of workers in all occupations is approximately 5 percent, whereas nationally this ratio is nearly 9 percent.[1] Similarly, the composition of establishment and occupational characteristics varies by area. In addition to these factors, the NCS collects compensation data for metropolitan areas at different times during

[1] Data for this example are based on the May 2005 Occupational Employment and Wage Estimates, http://www.bls.gov/oes/current/oessrcma.htm.

the year. Payroll reference dates differ between areas which makes direct comparisons between areas difficult.

The pay relative approach controls for these differences to isolate the geographic effect on wage determination. To illustrate the importance of controlling for these effects, consider the following example. The average hourly pay for professional workers in San Francisco is $39.41 and the average hourly pay for professional workers in the entire US is $30.24.[2] A simple pay comparison can be calculated from the ratio of the two average pay levels, multiplied by 100 to express the comparison as a percentage. The pay comparison in the example is calculated as:

$$(\$39.41 \div \$30.24) \times 100 \cong 130$$

However, this comparison does not control for the inter-area difference in occupational composition. Some of the 30 percent pay premium in San Francisco relative to the nation as a whole is due to the higher concentration of highly compensated professional workers in San Francisco. A more accurate estimate of the geographic effect on wage determination in San Francisco can be obtained by taking into account this and other differences. Controlling for the differences in occupational composition, establishment and occupational characteristics, and the payroll reference date in San Francisco relative to the nation as the whole, the pay relative for professional occupations in San Francisco is equal to 117.

Using pay relative data

Because the NCS is a sample survey, pay relatives derived from the NCS will differ to some extent from the true pay relatives that could be calculated only by collecting information on every job in every establishment. For similar reasons, pay relatives derived from the NCS may fluctuate from one year to the next. To assist data users with the use of these data, tests have been conducted to determine whether differences between each pay relative and the pay relative for the nation as a whole are statistically significant (that is, the pay for the given occupation in that area is too different from the national average to be accounted for by the randomness of the survey's sample). Similar tests are conducted for the area-to-area comparisons. In all tables, statistically significant pay relatives are denoted with an asterisk (*). More information on significance testing is available in the Technical Note.

Also because of sample variation from year to year, data users are cautioned about inferring that there have been actual changes in underlying economic conditions from changes in the estimated pay relatives between 2004 and 2005. This caution applies even more strongly to estimates by occupational group.

Technical Note

Because the NCS is a sample survey, data are subject to sampling error. For the data presented here, sampling error are differences that occur between the pay relatives estimated from the sample and the true pay relatives derived from the population. It is important to assess whether differences between each pay relative and the pay relative for the nation as a whole is likely to be a result of sampling error or of true differences in pay levels. To perform this assessment, a test of statistical significance is conducted.

The test constructs a 90-percent confidence interval that assumes the given area's true pay relative is equal to the national average. The confidence interval is constructed so that there is a 90 percent probability the pay relative calculated from any one sample is contained within the confidence interval. If from a single sample a calculated pay relative falls within the confidence interval, then the pay relative is not statistically significant and the hypothesis that the true pay relative is equal to the national average is accepted. However, if the pay relative falls outside of the constructed confidence interval then the pay relative is statistically significant at the 10-percent level. The hypothesis that the given area's pay relative is equal to the pay relative for the nation is rejected and one can conclude with reasonable confidence that the true pay relative is different from the national average.

In addition to sampling error, pay relatives are subject to a variety of sources that can adversely influence the estimates. The NCS may be unable to obtain information for some establishments; there may be difficulties with survey definitions; respondents may be unable to

[2] Average pay for professional workers in San Francisco and for the United States are based on wage estimates published in the San Francisco–Oakland–San Jose, CA National Compensation Survey, March 2005 and the National Compensation Survey: Occupational Wages in the United States, June 2005, http://www.bls.gov/ncs/ocs/compub.htm.

provide correct information, or mistakes in recording or coding the data may occur. Non-sampling errors of these kinds were not specifically measured. However, they are expected to be minimal due to the extensive training of the field economists who gathered the survey data, computer edits of the data, and detailed data review.

Historical pay relative data are available for 1992-1996, 1998, 2002, and 2004. There are several differences between the recent pay relatives and the pay relatives for earlier years, including different industry and occupation classification systems, varying methodology, and different survey designs. These differences limit comparability. The pay relatives for 2004 and 2005 were calculated using the same industry and occupation classification systems, methodology, and survey design. Nonetheless, comparisons between the estimates for the two years should be made only with a high degree of caution.

Pay relatives were estimated using a multivariate regression technique methodology to control for interarea differences. This technique controls for the following ten characteristics:

- Occupational type
- Industry type
- Work level
- Full-time / part-time status
- Time / incentive status
- Union / nonunion status
- Ownership type
- Profit / non-profit status
- Establishment employment
- Payroll reference date

Even accounting for the characteristics used in the current regression analysis, there is still significant wage variation across the areas. The variation is due to differences in wage determinants that were not included in the model. Examples of these determinants include price levels, environmental amenities such as a pleasant climate, and cultural amenities.

The pay relative regression methodology introduces another type of error. Regression models are subject to specification error. The significance test does not specifically measure specification error. However, care was taken to minimize this form of error by an extensive search across specifications for the model that performs best in terms of predictive accuracy.

For more details, see Maury B. Gittleman, "Pay Relatives for Metropolitan Areas in the U.S." *Monthly Labor Review*, March 2005, pp. 46-53, and Parastou Karen Shahpoori, "Pay Relatives for Major Metropolitan Areas," *Compensation and Working Conditions*, Spring 2003.

Table 1. Pay relatives for major occupational groups in metropolitan areas in Florida, area-to-area comparisons, National Compensation Survey, 2005

Base Area (Pay Relative = 100)	Metropolitan Area 1/	All occupations	Management, business, and financial	Professional and related	Service	Sales and related	Office and administrative support	Construction and extraction	Installation, maintenance, and repair	Production	Transportation and material moving
Melbourne-Titusville-Palm Bay, FL	Miami-Fort Lauderdale	104*	102	113*	99	100	111*	90*	101	104	95
	Ocala	99*	96	103*	98*	99	105*	84*	89*	94*	99
	Orlando	102	98	109*	95*	106	107*	93	98	97	100
	Tallahassee	96*	80*	106*	96*	98	101	97	86*	96	104
	Tampa	102	98	109*	97	95	113*	102	95	98	98
Miami-Fort Lauderdale, FL	Melborne	96*	98	88*	101	100	90*	111*	99	97	105
	Ocala	95*	94	91*	99	99	94*	93	88*	91*	105
	Orlando	98	96	96	96	106	96	103	97	93	105
	Tallahassee	92*	78*	93*	97	98	91*	107	85*	93	110*
	Tampa	98	96	96*	98	95	101	114	94	94	103
Ocala, FL	Melborne	101*	104	97*	102*	101	95*	119*	113*	106*	101
	Miami-Fort Lauderdale	105*	107	110*	101	101	106*	107	114*	110*	95
	Orlando	104*	102	106*	97	108*	102	111*	110*	103	100
	Tallahassee	97*	84*	102*	98*	99	96*	115*	96	102	105*
	Tampa	103*	102	105*	100	96	107*	122*	107*	104	98
Orlando, FL	Melborne	98	102	92*	105*	94	93*	107	102	103	100
	Miami-Fort Lauderdale	102	105	104	104	94	104	97	104	107	95
	Ocala	96*	98	95*	103	93*	98	90*	91*	97	100
	Tallahassee	94*	82*	97	101	92*	94*	104	88*	99	105
	Tampa	99	100	99	103	89*	105	110	97	101	98
Tallahassee, FL	Melborne	104*	124*	95*	104*	102	99	103	117*	104	96
	Miami-Fort Lauderdale	108*	128*	107*	103	102	110*	93	118*	108	91*
	Ocala	103*	119*	98*	102*	101	104*	87*	104	98	95*
	Orlando	107*	122*	103	99	109*	106*	96	114*	101	95
	Tampa	106*	122*	103	102	97	112*	106	111*	102	93*
Tampa-St. Petersburg-Clearwater, FL	Melborne	98	102	92*	103	106	89*	98	106	102	103
	Miami-Fort Lauderdale	102	104	104*	102	106	99	88	107	106	97
	Ocala	97*	98	95*	100	104	93*	82*	94*	96	102
	Orlando	101	100	101	97	112*	95	91	103	99	102
	Tallahassee	94*	82*	97	98	103	90*	94	90*	98	107*

* The pay relative for this area is significantly different from the average in the metropolitan area at the ten percent level of significance. For additional details, see the Technical Note at http://www.bls.gov/news.release/ncspay.tn.htm.

1/ A metropolitan area can be a Metropolitan Statistical Area (MSA) or Consolidated Metropolitan Statistical Area (CMSA) as defined by the Office of Management and Budget, 1994.